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EXAMINER

CUNEO, KAMAND

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 05/07/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

91658838

Applicant(s)

Examiner

Cuno

Group Art Unit

2827

--The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address--

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on 2/8/02.
- ☒ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-13, 16-18, 23-28 is/are pending in the application.
- ☐ Of the above claim(s) is/are withdrawn from consideration.
- ☐ Claim(s) is/are allowed.
- ☒ Claim(s) 1-13, 16-18, 23-28 is/are rejected.
- ☐ Claim(s) is/are objected to.
- ☐ Claim(s) are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☒ The ~~proposed~~ ^{formal} drawing correction, filed on 2/19/02 is ☒ approved ☐ disapproved.
- ☐ The drawing(s) filed on is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
- ☐ received in Application No. (Series Code/Serial Number) _____.
- ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 13
- ☐ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

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DETAILED ACTION

Treatment of Claims Based on Language and Format

1. 35 USC 112, second paragraph, states:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-13, 16-18, 23-28 are rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1 and 13, the recitation that the sealing structure is configured to for a seal to prevent the infiltration or to permit the article to withstand thermal cycling renders the scope indefinite, because it is not clear what structural limitation composes this configuration. That is, is the existence of the seal being of the claimed material and encircling the superconductor (the structure explicitly recited in the claim) sufficient to enable this capability or is some other structural feature required. In the latter case, the claim is incomplete and its scope indefinite. In the former case, if clarification is made, examiner will withdraw this rejection.

This problem exists with the "configured" limitations in the dependent claims, in particular, claims 10-11, 13, 24-25.

This issue was raised in the previous office action and applicant has responded by modifying the wording of the claims. Nevertheless, the issue still remains ambiguous and clarification is required, because otherwise the scope of the claims remains unclear.

To apply art, examiner assumes that the functions follow from the already-recited

structure.

Treatment of Claims Based on Prior Art

3. 35 USC 102 includes the following sections which state:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 3719 (c) of this title before the invention thereof by the applicant for patent.

4. Claims 1, 12, 24-25 are rejected under 35 USC 102(b) as being anticipated by Sato et al. (US 5114908, hereafter Sato 908).

Claims 1 and 12: Figure 3 shows ceramic (top of column 3) superconductors (3) surrounded by sealing structure (12). The sealing structure is a cured polymer layer (FRP) encircling the outside surface of the superconductors, and the article is in the form of a cable.

5. Claims 1, 2, 6, 8-13, 23-25, 28 are rejected under 35 USC 102(b) as being anticipated by Sato et al. (US 5276281, hereafter Sato 281).

Claims 1 and 12: Figure 2 shows superconducting wires (6) surrounded by sealing structure (8). The sealing structure is a cured polymer layer (Teflon®) encircling the outside surface of the wires.

Claim 2, 23, 28: The metallic tape is (7).

Claim 6: The wire is a tape including outer top, bottom and side faces.

Claims 8-9: The wire is constructed from superconducting material in a silver matrix. The layer of silver below the superconducting material is considered as a metallic substrate supporting the superconducting material.

Claims 10-11: The sealing structure is present. See the rejections under section 112, above.

Claim 13: See the explanation above for claim 12 and the rejection under section 112.

6. 35 USC 103(a) states:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Obviousness under 35 USC 103(a) is determined against a background established by the factual inquires set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), which are summarized in items 1-4 below.

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 USC 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 USC 103(c) and potential 35 USC 102(f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1, 3-5, 7-8, 10-13, 16-18, 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woolf et al. (US 4647888, hereafter Woolf).

Claims 1 and 12: Superconductors (10) surrounded by sealing structure (11). The sealing structure is a cured polymer layer (Column 3 at lines 21-30) encircling the outside surface of the superconductors. The article is in the form of a cable as clearly seen in figure 5 and is implied by the title of the patent.

Woolf discloses the claimed invention except for specifying that the superconductors are ceramic. Nevertheless, Woolf states at column 3, lines 4, that any new superconducting material may be used. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to use ceramic material for the wire of Woolf to enable higher coolant temperatures and larger current carrying capacity, because use of ceramic superconducting material at the time of the claimed invention (1999) was routine in the art.

Claims 3-5, 26-27: The sealing structure has conductive media (22) dispersed in it as seen in figures 2 and 3. Some material used for media (22) are specified in the table in column 6. As the structure (11) is in contact with the length of the wire (10), the polymer layer will be conductive along the direction parallel to the thickness of the composite wire.

Claim 7: Woolf discloses the claimed inventions as explained with respect to claim 1 above, except for disclosing that wires are greater than 50 meters. Nevertheless, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to form the

wires of Woolf over 50 meters and wind them into a coil, because formation of wires in lengths greater than 50 meters for the formation of a coil (to make a coil of sufficient length) is well known in the art.

Claim 8: The filaments are (18).

Claims 10-11: The sealing structure is present. See the rejections under section 112, above.

Claim 13: See the explanation above for claim 12 and the rejection under section 112.

Claims 16-17: The claimed properties are inherent to the material of the sealing structure, see column 3 at lines 21-30.

9. Claims 7 and 15 are rejected under 35 USC 103(a) as being unpatentable over Sato 281.

Sato 281 discloses the claimed inventions as explained with respect to claim 1 above, except for disclosing that wires are greater than 50 meters and except for disclosing that the wires are formed into a coil. Nevertheless, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to form the wires of Sato over 50 meters and wind them into a coil, because formation of wires in lengths greater than 50 meters and winding them into coils to form magnets (one of the most prevalent uses of superconducting wires) is well known in the art.

Response to Arguments

10. Applicant's arguments have been carefully reviewed and are moot in view of the new grounds of rejection. Nevertheless, examiner responds to the points that applicant has raised

with respect to the prior art.

Applicant states that the Sato references do not show that the polymer layer encircles the superconductors. Examiner is confused by this assertion. As clearly seen and understood from the Sato references, the polymer layer extends 360 degrees around the conductors. Therefore, it encircles them.

Applicant's next argument is that conductors are potted as a coil. Applicant then argues that there is no teaching that this article can be a cable. Examiner points out that the article *is* a cable, an elongated conductor structure. Further, it is obvious from figure 5 that the article is a cable. Moreover, the title of the patent is High Temperature Composite for a *Superconductor*.

Applicant argues that Woolf must be modified to replace the matrix with cured polymer. This is incorrect. The matrix is the cured polymer and no substitution of this sort is necessary.

On the arguments that the material of the matrix could not withstand the bend tolerances of a cable, examiner notes that, first, no such bending is claimed, second, the article of Woolf is a cable. Unless otherwise proven by applicant, the device of Woolf is assumed operative. If it is operative, then it must stand whatever requirement a superconducting cable is subject to, because it is a superconducting cable.

Applicant's comments on Desolite (Registered Trademark) are appreciated.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Closing

12. Any inquiries related to the examination of this application should be directed to Ex. K. Cuneo at (703) 308-1233 or her supervisor Ex. J Gaffin at (703) 308-3301. Inquiries of a general nature should be directed to the receptionist of Group 2800 at (703) 308-0956. The fax numbers for Group 2800 are (703) 308-7722 and 7724.



K. Cuneo
Primary Examiner Group 2841
May 6, 2002